

AMENDMENTS TO THE CLAIMS

Please replace the pending claims with the following claim listing:

1. **(Cancelled)**
2. **(Currently Amended)** The semiconductor Mach-Zehnder type optical modulator according to claim [[1]] 5, wherein the semiconductor optical modulator has a waveguide structure that is a high-mesa waveguide structure or a ridge waveguide structure.
3. **(Currently Amended)** The semiconductor Mach-Zehnder type optical modulator according to claim [[1]] 5, further comprising electrodes that are respectively connected to the n-type cladding layer or the semi-insulating type cladding layer placed directly on the substrate and to the n-type cladding layer or the semi-insulating type cladding layer including a surface opposite from a laminated surface with the semiconductor optical waveguide core layer laminated on the substrate, and voltage is applied.
4. **(Currently Amended)** The semiconductor Mach-Zehnder type optical modulator according to claim 3, wherein the electrodes are configured to be a coplanar waveguide line structure.

5. **(Currently Amended)** A semiconductor Mach-Zehnder type optical modulator comprising:

~~[[the]]~~ a semiconductor optical modulator according to claim 1, comprising:

a layered structure in which a semi-insulating type cladding layer, a semiconductor optical waveguide core layer, and a semi-insulating type cladding layer are sequentially laminated on a substrate,

wherein a part of at least one of the semi-insulating type cladding layers including a surface opposite from a laminated surface with the semiconductor optical waveguide core layer is an n-type cladding layer, or all of at least one of the semi-insulating type cladding layers is an n-type cladding layer;

an optical splitter by which input light is split into two light beams, ~~beams~~; and

an optical coupler by which light beams modulated by the semiconductor optical modulator are combined together.

6-10. **(Cancelled)**

11. **(Currently Amended)** A semiconductor optical modulator comprising:

a substrate;

a first n-type cladding layer laminated on said substrate;

a first semi-insulating cladding layer laminated on ~~the substrate~~ said first n-type cladding layer;

a semiconductor optical waveguide core layer laminated on the first semi-insulating type cladding layer; [[and]]

a second semi-insulating cladding layer laminated on ~~[[the]]~~ said semiconductor optical waveguide core layer, at least a portion of the first or second semi-insulating cladding layers comprising an n-type cladding structure layer; and

a second n-type cladding layer laminated on said second semi-insulating cladding layer.

12-13. **(Cancelled)**

14. **(Previously Presented)** The semiconductor optical modulator recited in claim 11, wherein the semiconductor optical modulator comprises a waveguide structure that is a high-mesa waveguide structure or a ridge waveguide structure.

15. **(Currently Amended)** The semiconductor optical modulator recited in claim 11, further comprising:

a first electrode connected to ~~the first semi-insulating~~ said first n-type cladding layer;
and
a second electrode connected to ~~the second semi-insulating~~ said second n-type cladding layer.

16. **(Currently Amended)** A semiconductor Mach-Zehnder type optical modulator comprising:

[[the]] a semiconductor optical modulator recited in claim 11; comprising:
a substrate;
a first semi-insulating cladding layer laminated on said substrate;
a semiconductor optical waveguide core layer laminated on the first semi-insulating type cladding layer; and
a second semi-insulating cladding layer laminated on the said semiconductor optical waveguide core at least a portion of the first or second semi-insulating cladding layers comprising an n-type cladding structure layer;
an optical splitter by which input light is split into two light beams; and
an optical coupler by which light beams modulated by the semiconductor optical modulator are combined together.

17. **(New)** The semiconductor optical modulator recited in claim 15, wherein the electrodes are configured to be a coplanar waveguide line structure.

18. **(New)** A semiconductor optical modulator comprising:
a substrate;
a first n-type cladding layer laminated on said substrate;
a semiconductor optical waveguide core layer disposed on a side of said first n-type cladding layer opposite from said substrate;
a second n-type cladding layer disposed on a side of said semiconductor optical waveguide core layer opposite from said substrate; and
a semi-insulating type cladding layer disposed at least one of between said first n-type cladding layer and said optical waveguide core layer and between said second n-type cladding layer and said optical waveguide core layer.
19. **(New)** The semiconductor optical modulator recited in claim 18, wherein the modulator has a waveguide structure that is a high-mesa waveguide structure or a ridge waveguide structure.
20. **(New)** The semiconductor optical modulator recited in claim 18, further comprising:
a first electrode connected to said first n-type cladding layer; and
a second electrode connected to said second n-type cladding layer.
21. **(New)** The semiconductor optical modulator recited in claim 20, wherein the electrodes are configured to be a coplanar waveguide line structure.

22. **(New)** A semiconductor Mach-Zehnder type optical modulator comprising:
- a semiconductor optical modulator comprising
 - a substrate;
 - a first n-type cladding layer formed on said substrate;
 - an optical waveguide core layer formed over said first n-type cladding layer;
 - a second n-type cladding layer formed over said optical waveguide core layer;
 - and
 - a semi-insulating type cladding layer disposed at least one of between said first n-type cladding layer and said optical waveguide core layer and between said second n-type cladding layer and said optical waveguide core layer;
 - an optical splitter by which input light is split into two light beams; and
 - an optical coupler by which light beams modulated by the semiconductor optical modulator are combined together.